

REMARKS

The final Office Action dated November 16, 2006, and the Advisory Action dated February 22, 2007, have each been reviewed carefully and the application has been amended in a sincere effort to place it in condition for allowance. All objections and rejections are respectfully traversed. A Request for Continued Examination is being filed herewith.

Claims 38 – 45, 51, and 54 are pending in the case. Claim 52 has been cancelled herein.

Claim Rejections – 35 U.S.C. §102

Claims 38 and 39 were rejected under 35 U.S.C. §102(e) as being anticipated by United States Patent No. 6,682,839 to Wilkinson et al. (“Wilkinson”).

As stated in earlier prosecution, Wilkinson describes a method of controlling the temperature of a fuel cell stack using a heat exchanging mechanism. Wilkinson does not teach generating water that may be used in another fuel cell or in another manner as in Applicant’s claimed invention. The Examiner discusses the oxidant supply manifold 34 as taught by Wilkinson which directs the oxidant fluid stream to oxidant fluid passages of each individual fuel cell assemblies as described in Col. 8, lines 56 – 65. However it is noted that this cited passage from Wilkinson goes on to state that: “In turn, oxidant fluid passages direct the oxidant fluid stream to *cathode* 22 such that the oxidant contacts elec-

trocatalyst 28.’ (Col. 8, lines 64-66) (Emphasis added). Furthermore, Wilkinson is silent as to carbon dioxide management.

Accordingly, Wilkinson does not describe *a plurality of openings, a first opening being an air inlet allowing air introduction into said anode chamber, and a second opening being a separate fuel inlet allowing introduction of fuel into said anode chamber, such that when air and fuel are introduced into said anode chamber, fuel is oxidized on said anode aspect into water and carbon dioxide, said anode chamber further including an opening through which carbon dioxide exits* as claimed in Applicant’s amended independent claims.

Accordingly, as Wilkinson does not disclose, teach or suggest these features as claimed, and thus Wilkinson is legally precluded from anticipating the invention of claims 38 and 39, and the claims dependent therefrom namely, claims 40-44.

Claims 51-54 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,210,820 to Knights et al. (“Knights”).

The Knights reference relates to a method for operating a reformer based, hydrogen fuel cell, and more particularly to operating such fuel cells on impure fuels by introducing variable concentrations of oxygen into the impure fuel stream to remove contaminants such as carbon monoxide. A supply of fuel 3 provides feedstock for the reformer. The fuel is reformed into hydrogen gas which is then supplied to the stack. Oxygen can be added to remove impurities from the fuel. Furthermore, the Examiner mentions various aspects which the Examiner indicates are inherent but it is noted that such reactions occur on the cathode side of the fuel cell. Knights contains no teaching about reacting

fuel to generate water, and contains no teachings about driving reactions on the anode side as claimed by Applicant.

Knights contains no teachings about water generation and therefore does not anticipate Applicant's claimed steps of *detachably connecting a load across said membrane electrode assembly and introducing fuel and oxygen into said anode chamber to oxidize said fuel to produce water, and detaching said load such that the system produces no electricity*, as set forth in amended independent claim 51.

Accordingly, it is respectfully submitted that the Knights reference does not anticipate Applicants invention of claim 51 and the claims dependent therefrom.

Claim 45 was rejected under 35 U.S.C. § 103 as being unpatentable over Wilkinson and in view of U.S. Patent No. 6, 410, 175 to Tillmetz et al., ("Tillmetz").

Wilkinson has been distinguished with respect to claims 38-43 above. Furthermore, Wilkinson merely suggests injecting a small fraction of air into the fuel inlet stream – Wilkinson does not suggest providing air via a separate air inlet into the anode chamber in order to create water, and providing this water to a second fuel cell as claimed by Applicant. In fact, Wilkinson teaches away from Applicant's invention because Wilkinson expressly mentions concern about water freezing (Col.10, lines 23 -43) and, thus does not suggest solutions that use or generate water. Wilkinson alone does not render claim 45 obvious due to the absence therefrom of Applicant's claimed features of *a plurality of openings, a first opening being an air inlet allowing air introduction into said anode chamber, and a second opening being a separate fuel inlet allowing introduction of fuel into said anode chamber, such that when air and fuel are introduced into said*

anode chamber, fuel is oxidized on said anode aspect into water and carbon dioxide, said anode chamber further including an opening through which carbon dioxide exits

With respect to Tillmetz, the Tillmetz reference also relates to reformer-based hydrogen fuel cells that require a reformer, not taught by Applicant. Applicant's invention relates to direct methanol fuel cells that do not require a reformer. Furthermore, though Tillmetz teaches two fuel cell stacks and mentions that "product" water can be used, this product water (as found inherent by the Examiner) would be produced on the cathode side of the fuel cell. Tillmetz contains no teaching that fuel and oxygen be reacted on the anode side into water and this water so generated is supplied to a second direct oxidation fuel cell. Tillmetz uses the methanol fuel on start up to produce a hydrogen gas fuel stream that is supplied to a different hydrogen fuel cell stack. Tillmetz does not teach generating water at an anode side of a first fuel cell and supplying this water to a second fuel cell in the manner claimed by Applicant.

Neither Knights nor Tillmetz alone or in combination discloses, teaches or suggests Applicant's invention.

All of the independent claims have been amended herein. It is respectfully submitted that the independent claims are patentable over the cited references and are now in condition for allowance. It is thus further respectfully submitted that the dependent claims are also in condition for allowance, being dependent upon allowable independent claims.

Accordingly, it is believed that the present amendment places the application in condition for allowance.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

/Rita M. Rooney/
Rita M. Rooney
Reg. No. 30,585
CESARI AND MCKENNA, LLP
88 Black Falcon Avenue
Boston, MA 02210-2414
(617) 951-2500